Data Sheet: 95.5 Lead-2.5 Silver-2Tin

Physical Properties of Bulk Solder

Solder Alloy Composition	95.5Pb-2.5Ag-2Sn (weight per cent)
Melting range	299-304°C
Density	11.19 Mg/m³
Thermal conductivity	0.28 W/cm K^{-1}
Electrical conductivity	5.7% IACS
Coefficient of Thermal Expansion	25.0 x 10^{-6} K^{-1}
Tensile strength (est.)	35 GNm^{-2}
Bonding strength	18 GNm^{-2}

Typical impurity levels for electronic grade are less then:

Au: 0.05	Cu: 0.08	Ni: 0.01 Al: 0.0005
Bi: 0.001	Fe: 0.02	Zn: 0.0003 As: 0.0003
Cd: 0.002	In: 0.10	

Application: The 95.5Pb2.5Ag2Sn-alloy is widely used for the manufacture of semiconductor components. It combines a higher melting range, with good mechanical strength and thermal fatigue properties. The 2% tin and the 2.5 Ag additions assure a reasonable wetting with higher strength to copper leads and Au-flash coated Si-chips in die-attach applications. The higher melting temperature range is wide enough to permit two-or even three-step soldering. The higher melting range makes the alloy also very suitable for fluxless soldering in an inert or reducing atmosphere.
Thanks to the high-Pb the alloy is a high-temperature tin-, silver-bearing solder with good thermal fatigue properties. It is used extensively in the assembly of diodes and rectifiers with preforms in belt furnaces and with wire in die-attach units with a forming gas mixture (N2, H2) or cracked anhydrous ammonia (75%H2, 25%N2).